



CALS TEST NETWORK

# AFCTN Test Report

## 94-027

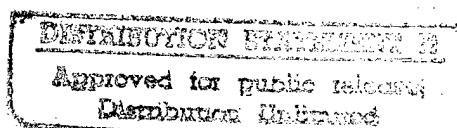
AFCTB-ID  
93-092



## Technical Raster Transfer

using:

## Cubic Defense Systems' Data



## 21 September 1993



Prepared for

Electronic Systems Center

DTIC QUALITY INSPECTED 8

19960822 154

**AFCTN Test Report**  
**94-027**

**AFCTB-ID**  
**93-092**

---

**Technical Raster Transfer  
Using:  
Cubic Defense Systems' Data**

**MIL-R-28002A (Raster)**

**Quick Short Test Report**

**21 September 1993**

---

**Prepared By**  
Air Force CALS Test Bed  
Wright-Patterson AFB, OH 45433

**AFCTB Contact**  
Gary Lammers  
(513) 427-2295

**AFCTN Contact**  
Mel Lammers  
(513) 427-2295

**DTIC QUALITY INSPECTED 3**

## DISCLAIMER

This document was prepared as an account of the work sponsored by the Air Force. Neither the United States Government, the Air Force, nor any of their employees makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, nor represents that its use would not infringe on privately owned rights. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the Air Force. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the Air Force, and shall not be used for advertising or product endorsement purposes.

Available to the public from the  
National Technical Information Service  
U.S. Department of Commerce  
5285 Port Royal Road  
Springfield, VA 22161

This report and those involved in its preparation do not endorse any product, process, or company stated herein. Use of these means by anyone does not imply certification by the Air Force CALS Test Network (AFCTN).

## Contents

1.	Introduction.....	1
1.1.	Background.....	1
1.2.	Purpose.....	2
2.	Test Parameters.....	3
3.	1840A Analysis.....	5
3.1.	External Packaging.....	5
3.2.	Transmission Envelope.....	5
3.2.1.	Tape Formats.....	5
3.2.2.	Declaration and Header Fields.....	6
4.	IGES Analysis.....	6
5.	SGML Analysis.....	6
6.	Raster Analysis.....	6
7.	CGM Analysis.....	7
8.	Conclusions and Recommendations.....	8
9.	Appendix A - Tapetool Report Logs.....	9
9.1.	Tape Catalog.....	9
9.2.	Tape Evaluation Log.....	11
9.3.	Tape File Set Validation Log.....	13
10.	Appendix B - Detailed Raster Analysis.....	17
10.1.	File D002R006.....	17
10.1.1.	Output HiJaak Pro.....	17
10.1.2.	Output G42TIFF/IslandPaint.....	18
10.1.3.	Output Preview.....	19

## 1. Introduction

### 1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

## **1.2 Purpose**

The purpose of the informal test, reported in this QSTR, was to analyze Cubic Defense Systems' interpretation and use of the CALS standards in transferring technical Raster data. Cubic Defense Systems used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

## 2. Test Parameters

**Test Plan:** AFCTB 93-092

**Date of Evaluation:** 21 September 1993

**Evaluator:**  
George Elwood  
Air Force CALS Test Bed  
DET 2 HQ ESC/AV-2P  
4027 Colonel Glenn Hwy  
Suite 300  
Dayton OH 45431-1672

**Data Originator:**  
John Akin  
Cubic Defense Systems  
9333 Balboa Avenue  
San Diego CA 92186-5587  
(619) 277-6780 X 2785

**Data Description:**  
Technical Raster Test  
3 Document Declaration files  
14 Raster files

**Data Source System:**  
1840  
    HARDWARE Unknown  
    SOFTWARE Unknown

    Raster  
    HARDWARE Unknown  
    SOFTWARE Unknown

**Evaluation Tools Used:**

**MIL-STD-1840A (TAPE)**  
SUN 3/280

AFCTN *Tapetool v1.2.10 UNIX*

XSoft *CAPS/CALS v40.4*

PC 486/50

AFCTN *Tapetool v1.2.10 DOS*

**MIL-R-28002 (Raster)**

SUN SparcStation 2

ArborText *g42tiff*

Carberry *CADLeaf Plus v3.1*

AFCTN *validg4*

AFCTN *calstb.475*

AFCTN *xrastb.sun4*

IGES Data Analysis (IDA) *IGESView v3.0*

Island Graphics *IslandPaint v3.0*

PC 486/50

IDA *IGESView Windows*

Inset Systems *HiJaak Window v1.0*

**Standards  
Tested:**

MIL-STD-1840A  
MIL-R-28002A

### **3. 1840A Analysis**

#### **3.1 External Packaging**

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density as, required by MIL-STD-1840A, para. 5.3.1. It was also noted that the tape reel had two cracked sections. No small parts were found in the packing material so it is assumed that the tape reel had these defects before it was sent. Enclosed in the box was a packing list showing all files recorded on the tape.

#### **3.2 Transmission Envelope**

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

##### **3.2.1 Tape Formats**

The tape was run through the AFCTN Tapetool v1.2.10 utility. No errors were encountered while evaluating the contents of the tape labels.

A note was reported on the tape label version. MIL-STD-1840A permits the use of both version three and four. The use of the most current standard should be used and noted.

The tape was read using XSoft's CAPS read1840A utility with no reported errors.

The tape's physical structure meets the MIL-STD-1840A requirements.

### **3.2.2 Declaration and Header Fields**

No errors were found in the Document Declaration file or the data file headers. This portion of the tape meets the requirements defined in CALS MIL-STD-1840A.

### **4. IGES Analysis**

No Initial Graphics Exchange Specification (IGES) files were included on this tape.

### **5. SGML Analysis**

No Standard Generalized Markup Language (SGML) files were included on this tape.

### **6. Raster Analysis**

The tape contained 14 Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported all files meet the CALS MIL-R28002A specification.

The files were read into the AFCTN *xrastb.sun4* viewing utility. All files could be viewed without a reported problem. All files appeared to be clean with no orphan pixels noted. It was noted that all of the images were scanned at a slight angle.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The files were converted using ArborText's *g42tiff* utility without a reported error. The resulting files were read

---

into Island Graphics' *IslandPaint*, displayed, and a sample printed.

The Raster files were read into Carberry's *CADLeaf* software. The software was able to read and display the images on the screen without a reported error.

The files were read into IDA's *IGESView*. This software was able to read, display, and print the files without a reported error. *IGESView for Windows* read and displayed the files without a reported error.

All files were read into Inset Systems' *HiJaak for Windows* without a reported error.

All files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were viewed using Rosetta Technologies' *Preview* without a problem. A sample file was printed.

The Raster files meet the CALS MIL-R-28002A specification.

## 7. CGM Analysis

No Computer Graphics Metafile (CGM) files were included on this tape.

## 8. Conclusions and Recommendations

The tape from Cubic Defense Systems had no reported errors in the physical structure. The document declaration and header files were also without a reported error. This portion of the tape meets the CALS MIL-STD-1840A requirements.

The Raster files meet the CALS MIL-R-28002A specification.

The tape submitted by Cubic Defense Systems meets the CALS MIL-STD-1840A requirements.

## 9. Appendix A - Tapetool Report Logs

### 9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information  
ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes  
for Information Interchange  
ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Tue Sep 21 16:16:52 1993

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set020

Page:  
1

File Name	File Type	Record Format/ Block Selected/ Length Length/Total
Extracted		
-----		
D001 Extracted	Document Declaration	D/00260 02048/000001
D002 Extracted	Document Declaration	D/00260 02048/000001
D003 Extracted	Document Declaration	D/00260 02048/000001
D001R001 Extracted	Raster	F/00128 02048/000010
<<<< PART OF LOG FILE REMOVED HERE >>>>		
D001R007 Extracted	Raster	F/00128 02048/000007
D002R001 Extracted	Raster	F/00128 02048/000015
<<<< PART OF LOG FILE REMOVED HERE >>>>		

D002R006 Extracted	Raster	F/00128 02048/000012
D003R001 Extracted	Raster	F/00128 02048/000058

Catalog Process terminated normally.

## 9.2 Tape Evaluation Log

CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)

#### Standards referenced:

ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Tue Sep 21 16:16:39 1993

## ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01

3

Label Identifier: VOL1  
Volume Identifier: CALS01  
Volume Accessibility:  
Owner Identifier:  
Label Standard Version: 3

\*\*\* NOTE (ANSI X3.27; 8.3.1.8) - The Label Standard Version should be 4 to represent the current level of ANSI X3.27.

HDR1D001 CALS0100010001000100 93260 93260 000000DECFILE11A

Label Identifier: HDR1  
File Identifier: D001  
File Set Identifier: CALS01  
File Section Number: 0001  
File Sequence Number: 0001  
Generation Number: 0001  
Generation Version Number: 00  
Creation Date: 93260  
Expiration Date: 93260  
File Accessibility:  
Block Count: 000000  
Implementation Identifier: DECFILE11A

HDR2D0204800260

00

Label Identifier: HDR2

Recording Format: D  
Block Length: 02048  
Record Length: 00260  
Offset Length: 00

<<<< PART OF LOG FILE REMOVED HERE >>>>

\*\*\*\*\* Tape Mark \*\*\*\*\*

##### End of Volume CALS01 #####

##### End Of Tape File Set #####

Deallocating /dev/rmt0...

Tape Import Process terminated with 0 error(s), 0 warning(s),  
and 1 note(s).

### 9.3 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Tue Sep 21 16:16:52 1993

MIL-STD-1840A File Set Evaluation Log

File Set: Set020

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: CUBIC DEFENSE SYSTEMS INC. 9333 BALBOA AVE. SAN DIEGO, CA 92123  
FSCM 94987  
srcdocid: 147345  
srcrelid: NONE  
chglvl: 3,3,19930308  
dteisu: 19770324  
dstsys: AD/YI  
dstdocid: NONE  
dstrelid: NONE  
dtetrn: 19930917  
dlvacc: A011R, E010R  
filcnt: R7  
ttlcls: UNCLASSIFIED  
doccls: UNCLASSIFIED  
doctyp: Document/Drawing List  
docttl: ADHESIVE

Found file: D001R001

Extracting Raster Header Records...

Evaluating Raster Header Records...

srcdocid: DL147345 94987 C 00010001UMEAHN  
001  
dstdocid: NONE  
txtfilid: NONE  
figid: NONE  
srcgph: NONE  
doccls: NONE  
rtype: 1

---

```
rorient: 000,270
rpelcnt: 002048,002560
rdenssty: 0200
notes: NONE
```

```
Saving Raster Header File: D001R001_HDR
Saving Raster Data File: D001R001_GR4
```

```
<<<< PART OF LOG FILE REMOVED HERE >>>>
```

```
Saving Raster Header File: D001R007_HDR
Saving Raster Data File: D001R007_GR4
```

```
Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.
```

```
Checking file count...
No errors were encountered during file count verification.
File Count verification complete.
```

```
No errors were encountered in Document D001.
```

```
Found file: D002
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...
```

```
srcsys: CUBIC DEFENSE SYSTEMS INC. 9333 BALBOA AVE. SAN DIEGO, CA 92123
FSCM 94987
srcdocid: 147348
srcrelid: NONE
chglvl: 3,3,19930308
dteisu: 19770324
dstsys: AD/YI
dstdocid: NONE
dstrelid: NONE
dtetrn: 19930917
dlvacc: A011R, E010R
filcnt: R6
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Document/Drawing List
docttl: GROMMET ASSY
```

```
<<<< PART OF LOG FILE REMOVED HERE >>>>
```

```
Evaluating numbering scheme...
```

No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...  
No errors were encountered during file count verification.  
File Count verification complete.

No errors were encountered in Document D002.

Found file: D003  
Extracting Document Declaration Header Records...  
Evaluating Document Declaration Header Records...

srcsys: CUBIC DEFENSE SYSTEMS INC. 9333 BALBOA AVE. SAN DIEGO, CA 92123  
FSCM 94987  
srcdocid: 217021  
srcrelid: NONE  
chglvl: 5,5,19930309  
dteisu: 19901220  
dstsys: AD/YI  
dstdocid: NONE  
dstrelid: NONE  
dtetrn: 19930917  
dlvacc: A011R, E010R  
filcnt: R1  
ttlcls: UNCLASSIFIED  
doccls: UNCLASSIFIED  
doctyp: Document/Drawing List  
docttl: SCREW ASSY, CAPTIVE

Found file: D003R001  
Extracting Raster Header Records...  
Evaluating Raster Header Records...

srcdocid: DL217021 94987 E 00010001UMEEHN  
001  
dstdocid: NONE  
txtfilid: NONE  
figid: NONE  
srcgph: NONE  
doccls: UNCLASS  
rtype: 1  
rorient: 000,270  
rpelcnt: 006992,004600  
rdenssty: 0200  
notes: NONE

---

Saving Raster Header File: D003R001\_HDR  
Saving Raster Data File: D003R001\_GR4

Evaluating numbering scheme...  
No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...  
No errors were encountered during file count verification.  
File Count verification complete.

No errors were encountered in Document D003.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

## 10. Appendix B - Detailed Raster Analysis

### 10.1 File D002R006

#### 10.1.1 Output HiJaak Pro

SUGGESTED SOURCES OF SUPPLY		
ITEM NO.	VENDOR PART NO.	VENDOR
-1	FX10-15019	TRIDAIR INDUSTRIES, FASTENER DIVISION TORRANCE, CA 90505 CODE IDENT: 29372

FIGURE 1

ITEM -1	MATERIAL	FINISH
GROMMET	18-8 TYPE 300 SERIES CRES PER QQ-S-764	PASSIVATE PER QQ-P-35
SPRING	17-7 PH CRES PER AMS 5643	PASSIVATE PER QQ-P-35, HEAT TREAT TO COND CH 900
Contract No. 1100019-77-C-0218		SIZE    CODE IDENT NO.    DRAWING NO. A    94987    147348 SCALE    NONE    REV    C    SHEET    6

### 10.1.2 Output G42TIFF/IslandPaint

SUGGESTED SOURCES OF SUPPLY		
ITEM NO.	VENDOR PART NO.	VENDOR
-1	FX10-15019	TRIDAIR INDUSTRIES, FASTENER DIVISION TORRANCE, CA 90505 CODE IDENT: 29372

FIGURE 1

ITEM -1	MATERIAL	FINISH
GRIMMET	18-8 TYPE 300 SERIES CRES PER QQ-S-784	PASSIVATE PER QQ-P-35
SPRING	17-7 PH CRES PER AMS 5643	PASSIVATE PER QQ-P-35, HEAT TREAT TO COND CH 900
Contract No. N00019-77-U-0210		SIZE A CODE 94987 DRAFTING NO. 147348
SCALE 1:100 REV. C		SHEET 6

### 10.1.3 Output Preview

SUGGESTED SOURCES OF SUPPLY		
ITEM NO.	VENDOR PART NO.	VENDOR
-1	FX10-15019	TRIDAIR INDUSTRIES, FASTENER DIVISION TORRANCE, CA 90505 CODE IDENT: 29372

FIGURE 1

ITEM -1	MATERIAL	FINISH
GROMMET	18-8 TYPE 300 SERIES CRES PER QQ-S-764	PASSIVATE PER QQ-P-35
SPRING	17-7 PH CRES PER AMS 5643	PASSIVATE PER QQ-P-35, HEAT TREAT TO COND CH 900
Contract No. N00019-77-C-0218		SIZE    CODE IDENT NO.    DRAWING NO.
		A    94987    147348
		SCALE    NONE    REV C    SHEET 6